

WHAT IS CLAIMED IS:

1. A process for cutting a glass sheet, comprising the steps of:
  - heat treating a glass sheet to be cut by applying at least one laser beam onto its surface and scanning it along a cutting line along which said sheet is to be cut, so that a sheet portion including said cutting line may be heated to a temperature equal to, or above its glass transition point, and then cooled to have a specific volume which is larger than that of the remaining portion;
  - 10 etching said heat-treated sheet to form a groove along said cutting line; and  
breaking said sheet along said groove.
2. The process according to claim 1, wherein said temperature is lower than the melting temperature of said glass.
3. The process according to claim 1, wherein two laser beams facing each other are employed for heating the two surfaces of said sheet simultaneously.
- 20 4. The process according to claim 1, wherein said cooling is forced immediately after said heating.
5. The process according to claim 4, wherein said cooling employs air as a coolant.
- 25 6. The process according to claim 1, wherein said groove has a

depth of at least 50 microns.

7. The process according to claim 1, wherein said etching employs an aqueous solution of acid ammonium fluoride as an etching 5 solution.

8. The process according to claim 7, wherein said solution is prepared by mixing ammonium fluoride and sulfuric acid.

10 9. The process according to claim 1, wherein said sheet has a linear expansion coefficient of at least  $35 \times 10^{-7}$ /deg. C at a temperature of 0 to 350 deg. C.

15 10. The process according to claim 1, wherein said cutting line is a closed curve having an ending point coinciding with its starting point.

11. The process according to claim 10, wherein said curve is a true circle.

20 12. The process according to claim 10, wherein said laser beam is inclined to a line normal to said surface of said sheet so that said groove may present a conical, or likewise tapered surface.

25 13. A glass disk for a recording medium, said disk having an inner periphery and an outer periphery each in the form of a true circle, and being of glass having a linear expansion coefficient of at

least  $35 \times 10^{-7}$ /deg. C at a temperature of 0 to 350 deg. C, each principal surface of said disk and each of its inner and outer peripheral surfaces having therebetween a corner formed by a part of a groove formed by applying a laser beam to the surface of a  
5 glass sheet before cutting out said disk therefrom, cooling said sheet and etching it with a solution containing fluorine.

04026474 - 04026475